

### **What Is Claimed Is**

1. A method for the suspension of colloidal or non-colloidal abrasive particles in an aqueous or semi aqueous carrier medium which comprises producing a stable precipitate or suspending particles so as to establish a particle to particle interference to settling of the abrasive particles in an aqueous carrier containing about 0.1 to 70% by weight of the abrasive inorganic and/or ceramic particles with about 0.1 to 20% by weight of suspending particles which differ from said abrasive particles and are selected from the group consisting of metal oxides, metal hydroxides, and metal oxide hydrates that form a suspended precipitate, gel, sol, solid emulsion or gelatinous suspension in said carrier medium at a pH of about 4 to 12.
2. The method of claim 1 wherein said aqueous carrier medium comprises 5 to 100% by weight water.
3. The method of claim 1 wherein said suspending particles as formed in the aqueous medium have a density similar to or less than the aqueous carrier medium.
4. The method of claim 1 wherein said aqueous carrier medium contains at least one inert polar solvent.
5. The method of claim 4 wherein said polar solvent is selected from the group consisting of dialkylene glycol, alkylene glycol, glycol ether, polyalkylene glycol, alkyl lactone, N-methyl pyrrolidone, alkylene carbonates, acetonitrile, and dimethyl acetamide.
6. The method of claim 1 wherein said suspending particles, sols, gels, gelatinous precipitates or solid emulsion suspensions are metal or transition metal hydroxides formed in situ.

7. The method of claim 6 wherein said suspending particles are selected from the group consisting of aluminum hydroxide, aluminum oxy hydroxide, zinc hydroxide, ferric hydroxide, manganese hydroxide, and magnesium hydroxide, which are formed in situ by treating the corresponding metal sulfate or metal salt with a Bronstead base.
8. The method of claim 1 wherein said abrasive particles are selected from the group consisting of diamond, silicon carbide, silicon, zirconium oxide, silica, cerium oxide, boron carbide, aluminum oxide, silicon nitride, and tungsten carbide.
9. The method of claim 1 including a corrosion inhibitor.
10. An aqueous or semi aqueous abrasive slurry composition for use in wafer or ceramics lapping, wire saw cutting, chemical, mechanical polishing applications, chemical, mechanical planarization, and metal lapping, grinding and finishing applications which comprise:
  - A. About 0.1 to 70% by weight of abrasive inorganic and/or ceramic particles;
  - B. About 0.1 to 20% by weight of said suspending particles which differ from said abrasive particles and are selected from the group consisting of metal oxides, metal hydroxides, and metal oxide hydrates that are formed in situ with the carrier medium and form suspended precipitates, gels, sols, colloidal or non-colloidal suspensions in the carrier medium at a pH of about 4 to 12,
  - C. About 5 to 100% by weight water, and
  - D. 0 to 95% of an inert polar solvent.
11. The aqueous abrasive slurry composition of claim 10 wherein said suspending particles have a density similar to or less than the carrier.
12. The aqueous slurry composition of claim 10 including an inert polar solvent.

13. The aqueous slurry composition of claim 12 wherein said polar solvent is selected from the group consisting of dialkylene glycol, alkylene glycol, polyalkylene glycol, glycol ether, alkyl lactone, N-methyl pyrrolidone, dimethyl acetamide, alkylene carbonates, acetonitrile, and alkyl amides.
14. The aqueous slurry composition of claim 10 wherein said suspending particles are selected from the group consisting of aluminum hydroxides, aluminum oxyhydroxides, manganese hydroxide, magnesium hydroxide, zinc hydroxide, ferric hydroxide formed in situ by treating the corresponding metal sulfate or metal salt with a Bronstead base to a pH level of from about 4 to 12..
15. The aqueous slurry composition of claim 10 wherein said abrasive particles are selected from the group consisting of diamond, silicon carbide, silicon, zirconium oxide, boron carbide, silica, cerium oxide, aluminum oxide, silicon nitride, and tungsten carbide.
16. The aqueous slurry composition of claim 10 wherein said abrasive particles are about 0.5 to 30  $\mu\text{m}$  in average size.
17. The aqueous slurry composition of claim 10 wherein said abrasive particle size is about 3 to 200  $\mu\text{m}$ .
18. The aqueous slurry composition of claim 10 wherein said abrasive particle size is about 0.1 to 10  $\mu\text{m}$ .
19. The aqueous slurry composition of claim 10 wherein said abrasive particle size is about 50 nm to 1000 nm.
20. The aqueous slurry composition of claim 10 including a corrosion inhibitor.